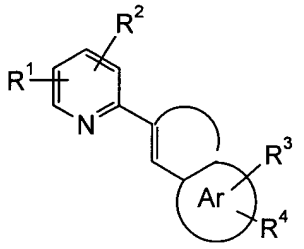
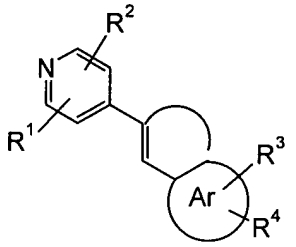
Claims

1. A compound of formulae



IA

or



IB

wherein

R^1 and R^2 are each independently selected from the group hydrogen, lower alkyl,$-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;

R^5 and $R^{5'}$ are each independently hydrogen or lower alkyl;

R^3 and R^4 are each independently selected from the group hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy;

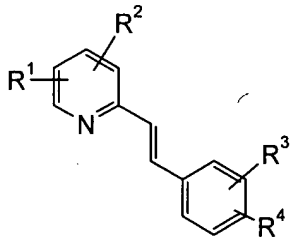
Aris selected from the group phenyl and thiophenyl;

The dotted line is selected from the group two hydrogens not forming a bridge, and $-CH_2$-CHR'-, wherein R' is selected from the group lower alkyl and hydrogen; and

n is 0, 1 or 2;

or a pharmaceutically acceptable acid addition salt thereof, with the proviso that when Ar is unsubstituted phenyl and R^2 is H, R^1 is not 2-amino.

2. A compound of formula



IA-1

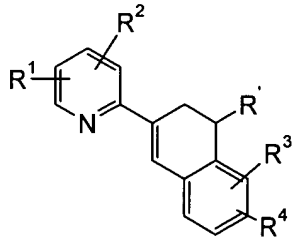
wherein R^1 and R^2 are each independently selected from the group hydrogen, lower alkyl, $-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;

R^5 and $R^{5'}$ are each independently hydrogen or lower alkyl; and

R^3 and R^4 are each independently selected from the group of hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy
or a pharmaceutically acceptable acid addition salt thereof.

3. A compound of formula IA-1 according to claim 2, selected from the group
trans-4-methyl-6-styryl-pyridin-2-yl-amine,
trans-2-styryl-pyridin-4-yl-amine and
trans-C-(6-styryl-pyridin-2-yl)-methylamine.

4. A compound of formula



IA-2

wherein
R^1 and R^2 are each independently selected from the group hydrogen, lower alkyl, $-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;
R^5 and $R^{5'}$ are each independently hydrogen or lower alkyl;
R^3 and R^4 are each independently selected from the group hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy; and
R' is selected from the group lower alkyl and hydrogen;
or a pharmaceutically acceptable acid addition salt thereof.

5. A compound of formula IA-2 according to claim 4, wherein R' is hydrogen.

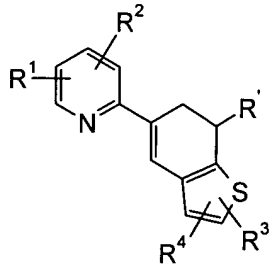
6. A compound of formula IA-2 according to claim 5, selected from the group
2-(3,4-dihydro-naphthalen-2-yl)-pyridin-4-yl-amine,
2-(3,4-dihydro-naphthalen-2-yl)-6-methyl-pyridin-4-yl-amine,
[4-amino-6-(3,4-dihydro-naphthalen-2-yl)-pyridin-2-yl]-methanol,
2-(3,4-dihydro-naphthalen-2-yl)-5-methyl-pyridin-4-yl-amine,
2-(3,4-dihydro-naphthalen-2-yl)-6-ethyl-pyridin-4-yl-amine,

2-(3,4-dihydro-naphthalen-2-yl)-pyridin-4-yl]-methyl-amine,
C-[6-(3,4-dihydro-naphthalen-2-yl)-pyridin-2-yl]-methylamine,
2-(7-chloro-3,4-dihydro-naphthalen-2-yl)-pyridin-4-yl-amine,
2-(5,7-dimethyl-3,4-dihydro-naphthalen-2-yl)-pyridin-4-yl-amine,
2-(7-chloro-3,4-dihydro-naphthalen-2-yl)-6-ethyl-pyridin-4-yl-amine,
2-(7-chloro-3,4-dihydro-naphthalen-2-yl)-6-methyl-pyridin-4-yl-amine and
2-(7-chloro-3,4-dihydro-naphthalen-2-yl)-5-methyl-pyridin-4-yl-amine.

7. A compound of formula IA-2 according to claim 4, wherein R' is methyl.

8. A compound of formula IA-2 according to claim 7, selected from the group
rac.-2-(4-methyl-3,4-dihydro-naphthalen-2-yl)-pyridin-4-yl-amine,
rac.-2-methyl-6-(4-methyl-3,4-dihydro-naphthalen-2-yl)-pyridin-4-yl-amine and
rac.-5-methyl-2-(4-methyl-3,4-dihydro-naphthalen-2-yl)-pyridin-4-yl-amine.

9. A compound of formula



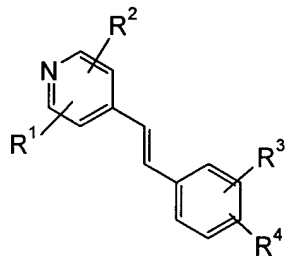
IA-4

wherein
R^1 and R^2 are each independently selected from the group hydrogen, lower alkyl, $-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;
R^5 and $R^{5'}$ are each independently hydrogen or lower alkyl; and
R^3 and R^4 are each independently selected from the group hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy;
R' is selected from the group lower alkyl and hydrogen; and
n is 0, 1 or 2;
or a pharmaceutically acceptable acid addition salt thereof.

10. A compound of formula IA-4 according to claim 9, wherein R' is hydrogen.

11. A compound of formula IA-4 according to claim 10, selected from the group 2-(6,7-dihydro-benzo[b]thiophen-5-yl)-pyridin-4-yl-amine and 2-(6,7-dihydro-benzo[b]thiophen-5-yl)-5-methyl-pyridin-4-yl-amine.

12. A compound of formula



IB-1

wherein

R^1 and R^2 are each independently selected from the group hydrogen, lower alkyl, $-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;

R^5 and $R^{5'}$ are each independently hydrogen or lower alkyl; and

R^3 and R^4 are each independently selected from the group hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy;

or a pharmaceutically acceptable acid addition salt thereof.

13. A compound of formula IB-1 according to claim 12, which is trans-6-methyl-4-styryl-pyridin-2-yl-amine.

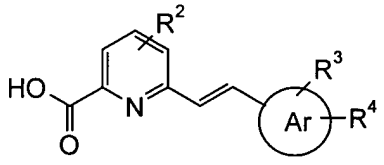
14. A compound of formula IA or IB according to claim 1, wherein one of R^1 or R^2 is amino.

15. A pharmaceutical composition comprising a compound of formula IA or IB of claim 1, combinations thereof or a pharmaceutically acceptable salt thereof and a pharmaceutically acceptable carrier.

16. A method of treatment of diseases responsive to therapeutic indications for NMDA receptor subtype specific blockers, such as Alzheimer's disease, Parkinson's disease, Huntington's disease, ALS (amyotrophic lateral sclerosis) and neurodegeneration associated with bacterial or viral infections, and, in addition, depression and chronic or acute pain comprising administering a therapeutically effective amount of a compound of formulae 1A or IB according to claim 1, combinations thereof or a pharmaceutically acceptable salt thereof to a patient in need of such treatment.

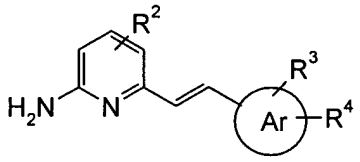
17. A process for preparing a compound of formula IA-1a comprising

a) reacting a compound of formula



IIA

with diphenyl phosphoryl azide, forming a compound of formula



IA-1a

wherein

R^2 is selected from the group hydrogen, lower alkyl,
$-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;

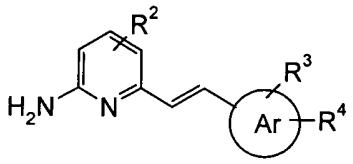
R^5 and $R^{5'}$ are each independently hydrogen or lower alkyl; and

R^3 and R^4 are each independently selected from the group hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy;

Ar is selected from the group phenyl and thiophenyl and

n is 0, 1 or 2.

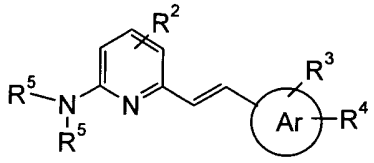
18. A process for preparing a compound of formula IA-1b comprising reacting the amino group of a compound of formula



IA-1a

with a compound of formula R^5X,

forming a compound of formula



IA-1b

wherein

R^2 is selected from the group hydrogen, lower alkyl, $-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;

R^3 and R^4 are each independently selected from the group hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy;

Ar is selected from the group phenyl and thiophenyl;

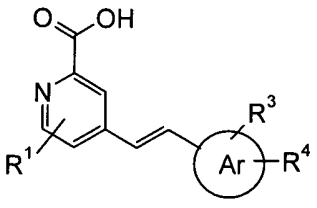
R^5 is lower alkyl;

X is halogen; and;

n is 0, 1 or 2.

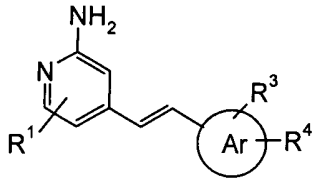
19. A process for preparing a compound of formulae IIB-1a, comprising:

reacting a compound of formula



IIB

with diphenyl phosphoryl azide forming a compound of formula



IIB-1a

wherein

R^2 is selected from the group hydrogen, lower alkyl, $-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;

R^3 and R^4 are each independently selected from the group hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy;

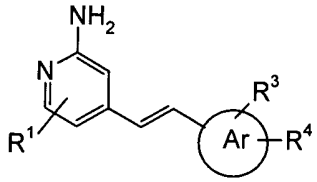
Ar is selected from the group phenyl and thiophenyl;

R^5 is lower alkyl; and;

n is 0, 1 or 2.

20. A process for preparing a compound of formula IIB-1b comprising:

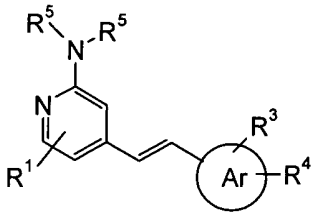
reacting the amino group of a compound of formula



IIB-1a

with a compound of formula R^5X

forming a compound of formula



IIB-1b

wherein

R^1 is selected from the group hydrogen, lower alkyl, $-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;

R^5 and $R^{5'}$ are each independently hydrogen or lower alkyl;

R^3 and R^4 are each independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy;

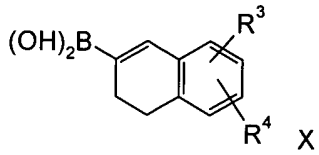
Ar is selected from the group phenyl and thiophenyl;

X is halogen; and

n is 0, 1 or 2.

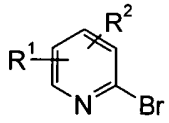
21. A process for preparing a compound of formulae IA-2 comprising:

reacting a compound of formula



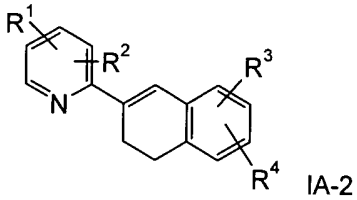
X

with a compound of formula



XIA

forming a compound of formula



IA-2

wherein

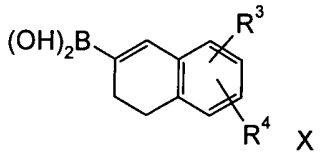
R^1 and R^2 are each independently selected from the group hydrogen, lower alkyl, $-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;

R^5 and $R^{5'}$ are each independently hydrogen or lower alkyl; and

R^3 and R^4 are each independently selected from the group hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy; and

n is 0, 1 or 2.

22. A process for preparing a compound of formula IB-2 comprising:
reacting a compound of formula

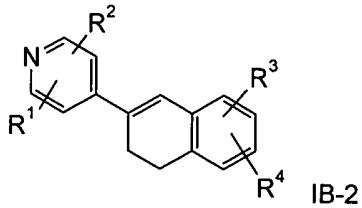


X

with a compound of formula

XIB

forming a compound of formula



IB-2

wherein

R^1 and R^2 are each independently selected from the group hydrogen, lower alkyl, $-(CH_2)_nNR^5R^{5'}$ and $-(CH_2)_{n+1}OH$;

R^5 and $R^{5'}$ are each independently hydrogen or lower alkyl; and

R^3 and R^4 are each independently selected from the group hydrogen, lower alkyl, lower alkoxy, halogen, trifluoromethyl and hydroxy; and

n is 0, 1 or 2.